TA13

series

Product Segments

- **Care Motion**

TiMOTION's TA13 series linear actuator is designed primarily for dental chairs requiring high-push load solutions, but can also be applied to a wide range of other medical applications. The TA13 supports load ratings up to 10000N. Its speed is up to 32.2mm/s even under the load of 1500N. Certificates for the TA13 include IEC60601-1 and ES60601-1.

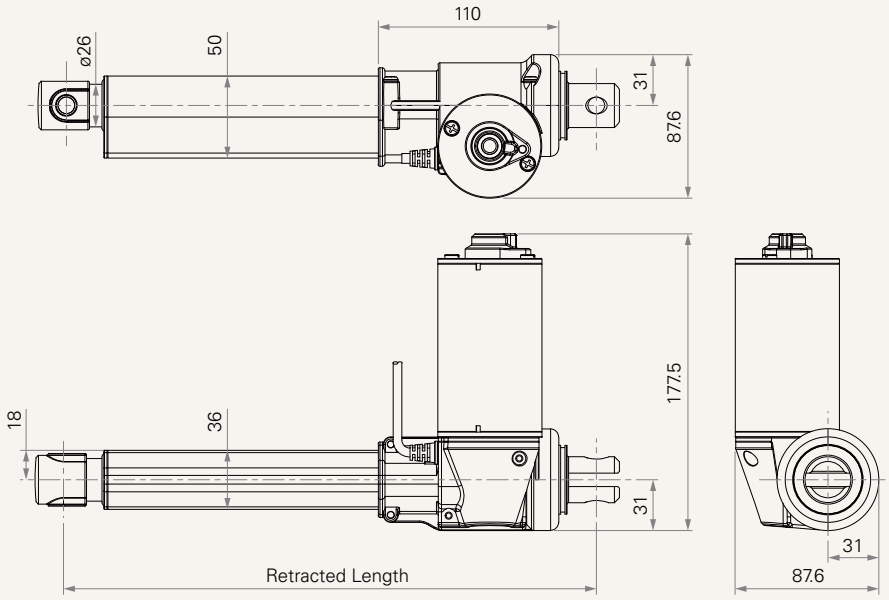
General Features

Max. load	10,000N (push); 5,500N (pull)
Max. speed at max. load	4.5mm/s
Max. speed at no load	49.4mm/s
Retracted length	≥ Stroke + 180mm
Certificate	IEC60601-1, ES60601-1, EMC
Stroke	25~1000mm
Output signals	Hall sensors, Reed sensor
Options	Push only
Voltage	24/36V DC, PTC or thermal protector
Color	Black, grey
Operational temperature range at full performance	+5°C~+45°C

Suitable for dentist chair application

Drawing

Standard Dimensions
(mm)



Load and Speed

CODE	Load (N)		Self Locking Force (N)	Typical Current (A)		Typical Speed (mm/s)	
	Push	Pull		No Load 32V DC	With Load 24V DC	No Load 32V DC	With Load 24V DC
Motor Speed (3000RPM, Duty Cycle 10%)							
T	8000	4000	8000	2.5	6.0	7.9	4.4
Motor Speed (3800RPM, Duty Cycle 10%)							
B	10000	4000	10000	2.5	8.5	8.0	4.5
C	8000	4000	8000	2.5	8.5	10.7	6.0
D	5500	5500	5500	2.5	8.0	14.4	8.1
E	3000	3000	3000	3.0	7.0	25.8	15.7
F	1500	1500	1500	2.5	6.5	49.4	32.2

Note

1 Please refer to the approved drawing for the final authentic value.

2 This self-locking force level is reached only when a short circuit is applied on the terminals of the motor. All the TiMOTION control boxes have this feature built-in.

3 The current & speed in table are tested with 24V DC motor. With a 12V DC motor, the current is approximately twice the current measured in 24V DC. With a 36V DC motor, the current is approximately two-thirds the current measured in 24V DC. Speed will be similar for all the voltages.

4 The current & speed in table are tested when the actuator is extending under push load.

5 The current & speed in table and diagram are tested with TiMOTION control boxes, and there will be around 10% tolerance depending on different models of the control box. (Under no load condition, the voltage is around 32V DC. At rated load, the voltage output will be around 24V DC)

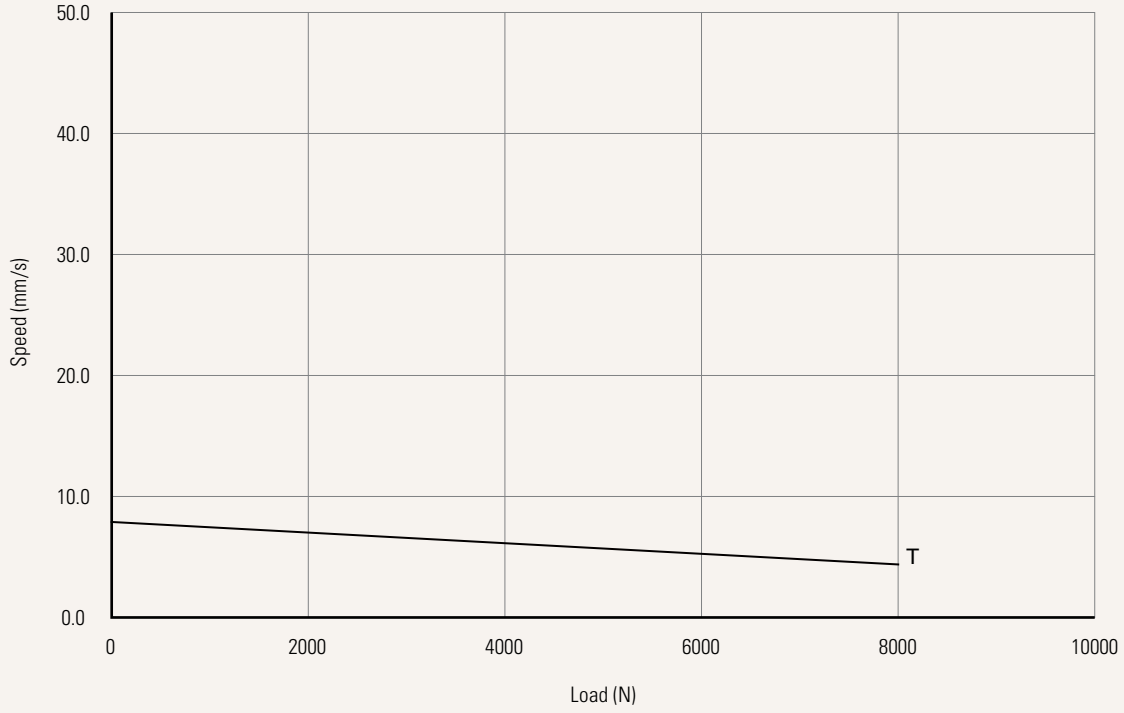
6 Standard stroke: Min. ≥ 25mm, Max. please refer to below table.

CODE	Load (N)	Max Stroke (mm)
B	10000	700
T, C	8000	750
D	5500	800
E	3000	900
F	1500	1000

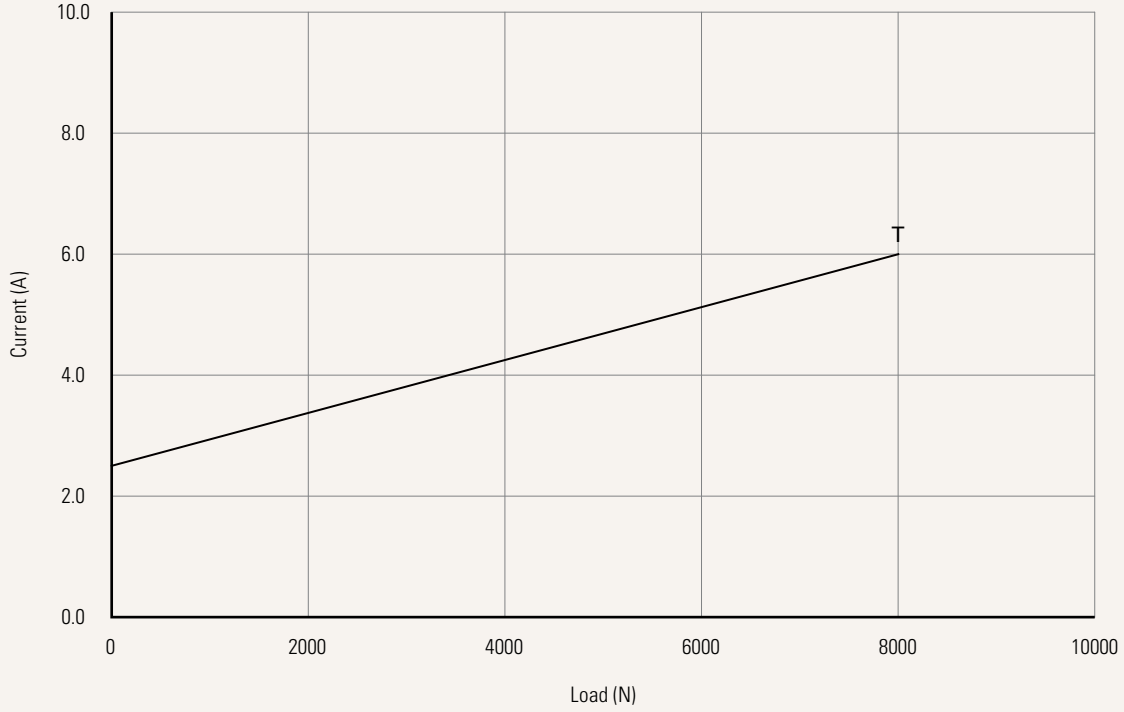
Performance Data (24V DC Motor)

Motor Speed (3000RPM, Duty Cycle 10%)

Speed vs. Load



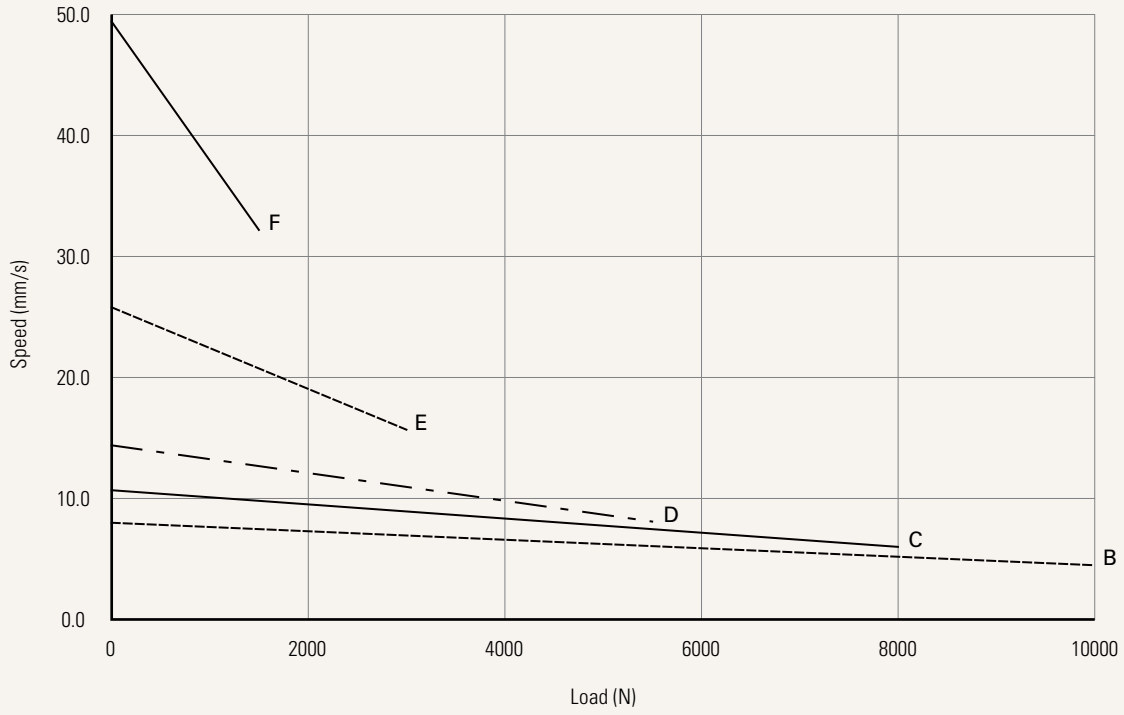
Current vs. Load



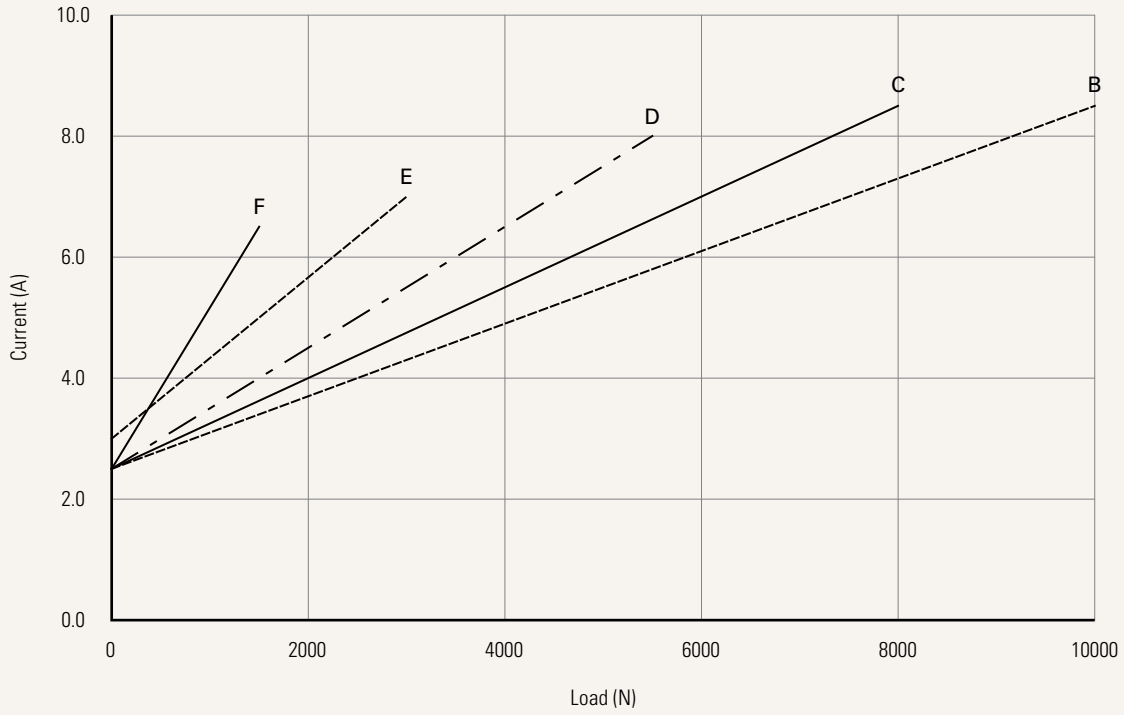
Performance Data (24V DC Motor)

Motor Speed (3800RPM, Duty Cycle 10%)

Speed vs. Load



Current vs. Load



TA13 Ordering Key

TiMOTION

TA13

Version: 20250730-J

Voltage	5 = 24V DC, PTC or thermal protector		7 = 36V DC, PTC or thermal protector	
Load and Speed	See page 2			
Stroke (mm)	See page 2			
Retracted Length (mm)	See page 6			
Rear Attachment (mm) See page 7	1 = Iron CNC, U clevis, slot 8.2, depth 17, hole 10.2, with plastic T-bushing 2 = Iron CNC, U clevis, slot 8.2, depth 17, hole 12.2		3 = Iron CNC, U clevis, slot 10.2, depth 17, hole 10.2, with plastic T-bushing 4 = Iron CNC, U clevis, slot 10.2, depth 17, hole 12.2	
Front Attachment (mm) See page 7	1 = Iron CNC, U clevis, slot 8.2, depth 17, hole 10.2, with plastic T-bushing 2 = Iron CNC, U clevis, slot 8.2, depth 17, hole 12.2 3 = Iron CNC, U clevis, slot 10.2, depth 17, hole 10.2, with plastic T-bushing 4 = Iron CNC, U clevis, slot 10.2, depth 17, hole 12.2		B = Punched hole on inner tube + plastic cap, width 32, without slot, hole 10.2 C = Punched hole on inner tube + plastic cap, width 32, without slot, hole 12.2 J = Aluminum casting, without slot, hole 10.2, for dental chair	
Direction of Rear Attachment (Counterclockwise) See page 8	1 = 0°	3 = 90°		
Color	1 = Black (Pantone Cool Gray 9C cable cover + black cable) 2 = Grey (Pantone Cool Gray 9C cable cover + Pantone 428C cable)			
Quick Release	0 = Without			
Special Functions for Spindle Sub-Assembly	0 = Without (Standard) 1 = Safety nut		2 = Standard push only 3 = Standard push only + safety nut	
Functions for Limit Switches See page 8	1 = Two switches at full retracted / extended positions to cut current 2 = Two switches at full retracted / extended positions to cut current + third one in between to send signal 3 = Two switches at full retracted / extended positions to send signal 4 = Two switches at full retracted / extended positions to send signal + third one in between to send signal			
Output Signal	0 = Without	2 = Hall sensor * 2	3 = Reed sensor	
Plug See page 8	1 = DIN 6P, 90° plug 2 = Tinned leads M = DIN 4P, dental chair plug (40510-143, standard)		N = DIN 4P, dental chair plug (40510-040) Q = Molex 6P, 90° plug	
Cable Length (mm)	1 = Straight, 500 2 = Straight, 750	3 = Straight, 1000 4 = Straight, 1250	5 = Straight, 1500 6 = Straight, 2000	7 = Curly, 200 8 = Curly, 400

TA13 Ordering Key Appendix

Retracted Length (mm)

1. Calculate A+B+C = Y
2. Retracted length needs to ≥ Stroke+Y

A. Front Attach.	
1, 2, 3, 4	+185
B, C	+180
J	+180

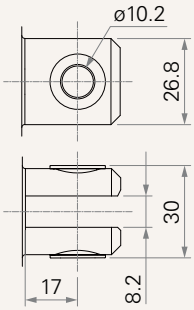
C. Load.	
B	+5
T, C	-
D, E, F	-

B. Stroke (mm)	
25~150	-
151~200	-
201~250	-
251~300	-
301~350	+10
351~400	+20
401~450	+30
451~500	+40
501~550	+50
551~600	+60
601~650	+70
651~700	+80
701~750	+90
751~800	+100
801~850	+110
851~900	+120
901~950	+130
951~1000	+140

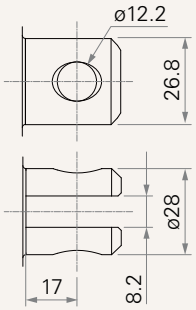
TA13 Ordering Key Appendix

Rear Attachment (mm)

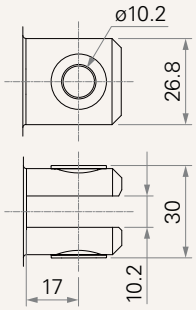
1 = Iron CNC, U clevis, slot 8.2, depth 17, hole 10.2, with plastic T-bushing



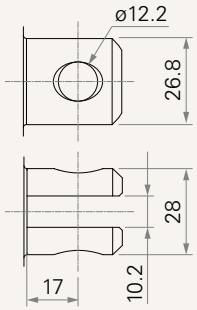
2 = Iron CNC, U clevis, slot 8.2, depth 17, hole 12.2



3 = Iron CNC, U clevis, slot 10.2, depth 17, hole 10.2, with plastic T-bushing

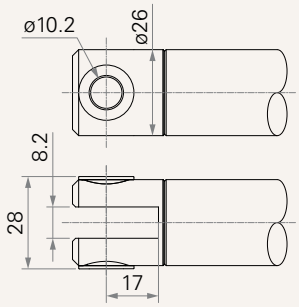


4 = Iron CNC, U clevis, slot 10.2, depth 17, hole 12.2

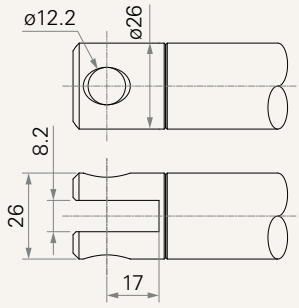


Front Attachment (mm)

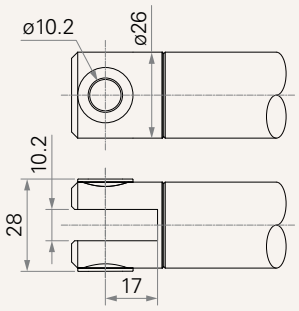
1 = Iron CNC, U clevis, slot 8.2, depth 17, hole 10.2, with plastic T-bushing



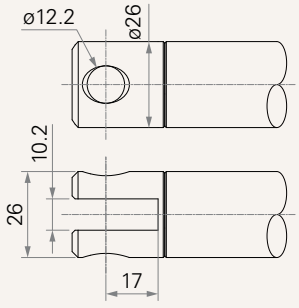
2 = Iron CNC, U clevis, slot 8.2, depth 17, hole 12.2



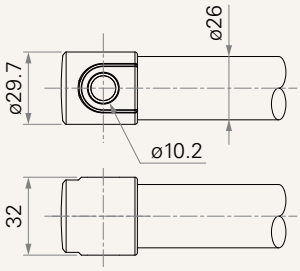
3 = Iron CNC, U clevis, slot 10.2, depth 17, hole 10.2, with plastic T-bushing



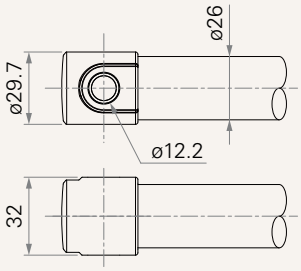
4 = Iron CNC, U clevis, slot 10.2, depth 17, hole 12.2



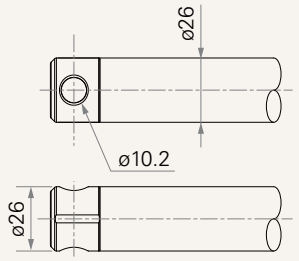
B = Punched hole on inner tube + plastic cap, width 32, without slot, hole 10.2



C = Punched hole on inner tube + plastic cap, width 32, without slot, hole 12.2



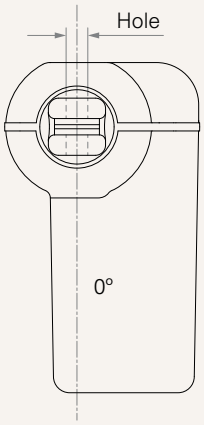
J = Aluminum casting, without slot, hole 10.2, for dental chair



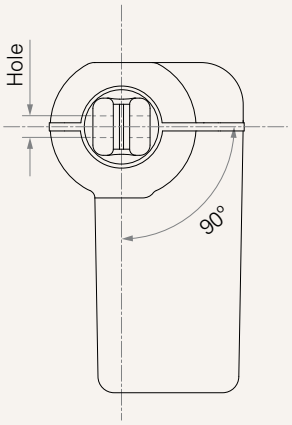
TA13 Ordering Key Appendix

Direction of Rear Attachment (Counterclockwise)

1 = 0°



3 = 90°



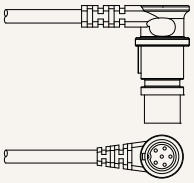
Functions for Limit Switches

Wire Definitions

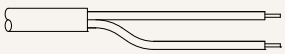
CODE	Pin					
	1 (Green)	2 (Red)	3 (White)	4 (Black)	5 (Yellow)	6 (Blue)
1	extend (VDC+)	N/A	N/A	N/A	retract (VDC+)	N/A
2	extend (VDC+)	N/A	middle switch pin B	middle switch pin A	retract (VDC+)	N/A
3	extend (VDC+)	common	upper limit switch	N/A	retract (VDC+)	lower limit switch
4	extend (VDC+)	common	upper limit switch	medium limit switch	retract (VDC+)	lower limit switch

Plug

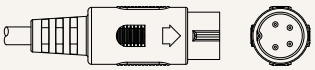
1 = DIN 6P, 90° plug



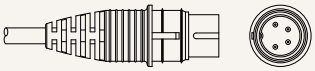
2 = Tinned leads



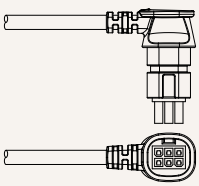
M = DIN 4P, dental chair plug (40510-143, standard)



N = DIN 4P, dental chair plug (40510-040)



Q = Molex 6P, 90° plug



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